0304-28.vsd/1

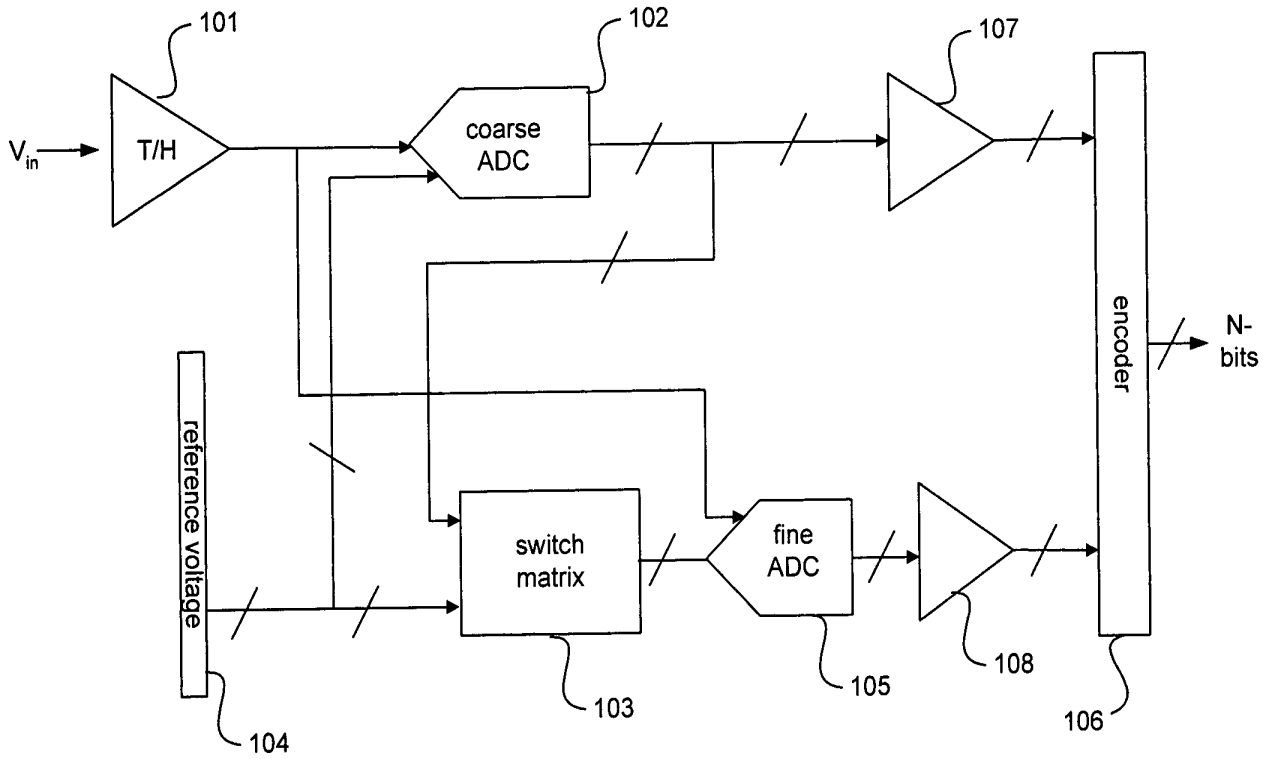

FIG. 1

Conventional Art

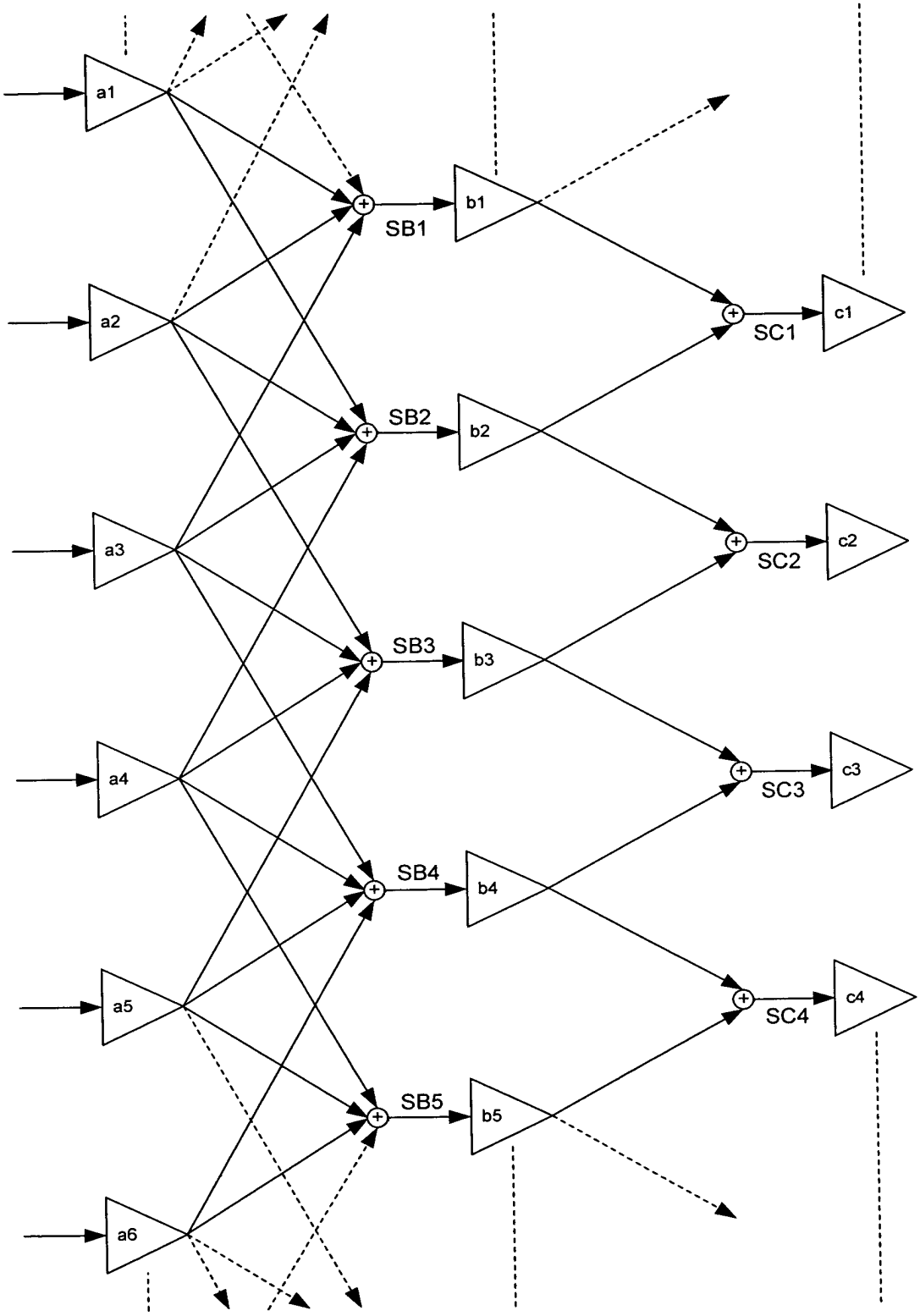

FIG. 2
Conventional Art

0304-28.vsd/2

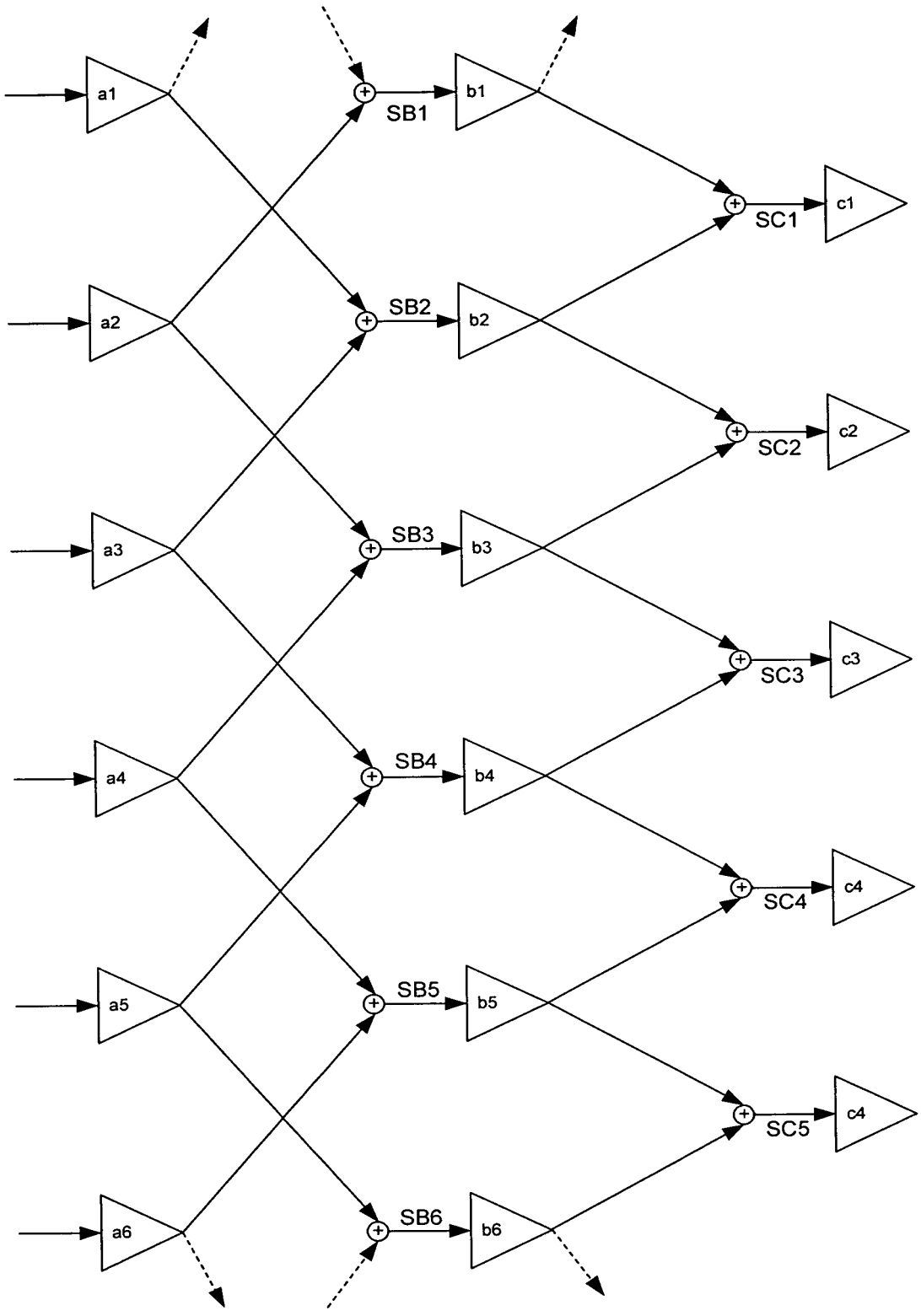
a1
a2
a3
a4
a5
a6
SB1
SB2
SB3
SB4
SB5
SB6
b1
b2
b3
b4
b5
b6
SC1
SC2
SC3
SC4
SC5
c1
c2
c3
c4
c4

FIG. 3

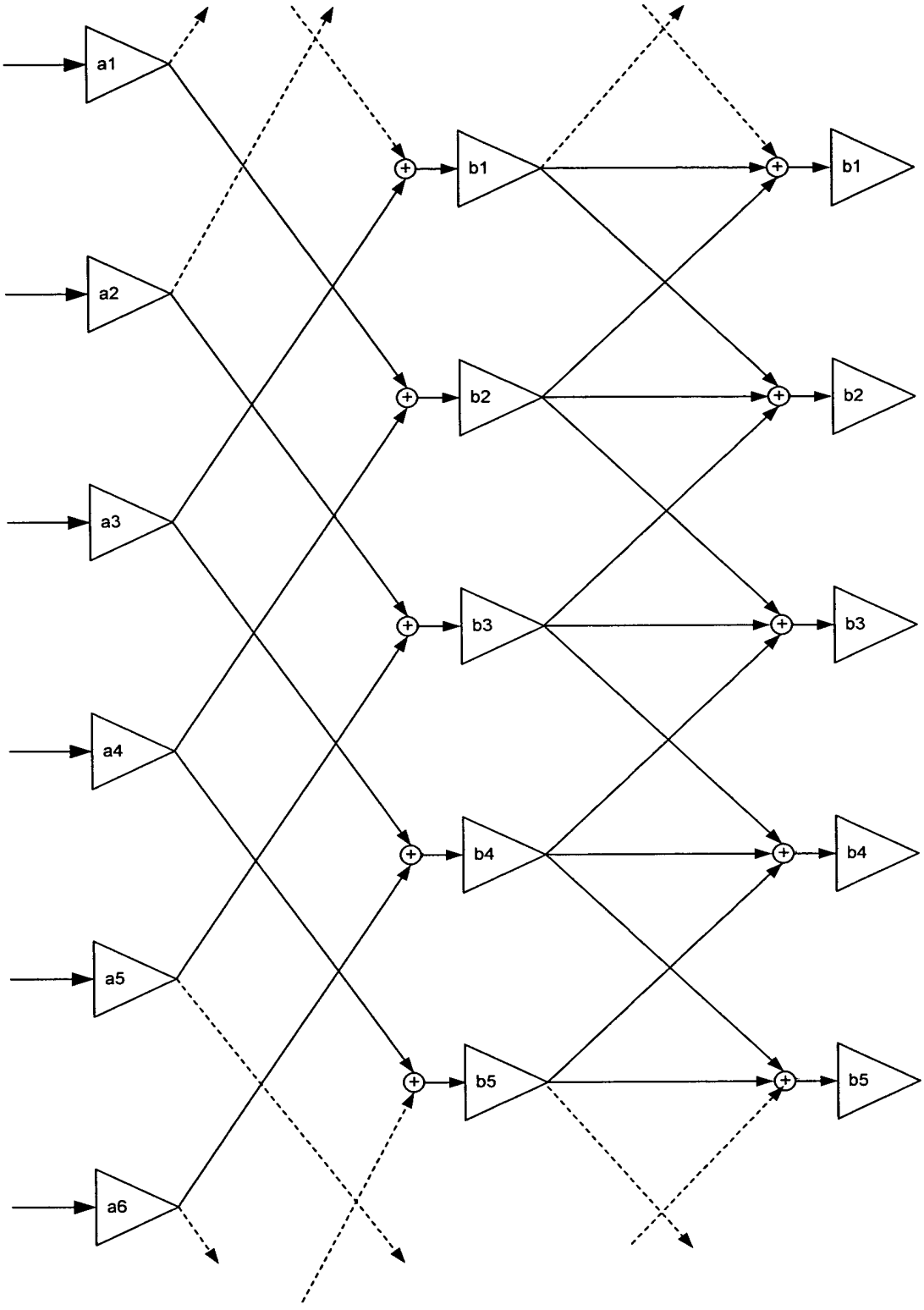

FIG. 4

0304-28.vsd/4

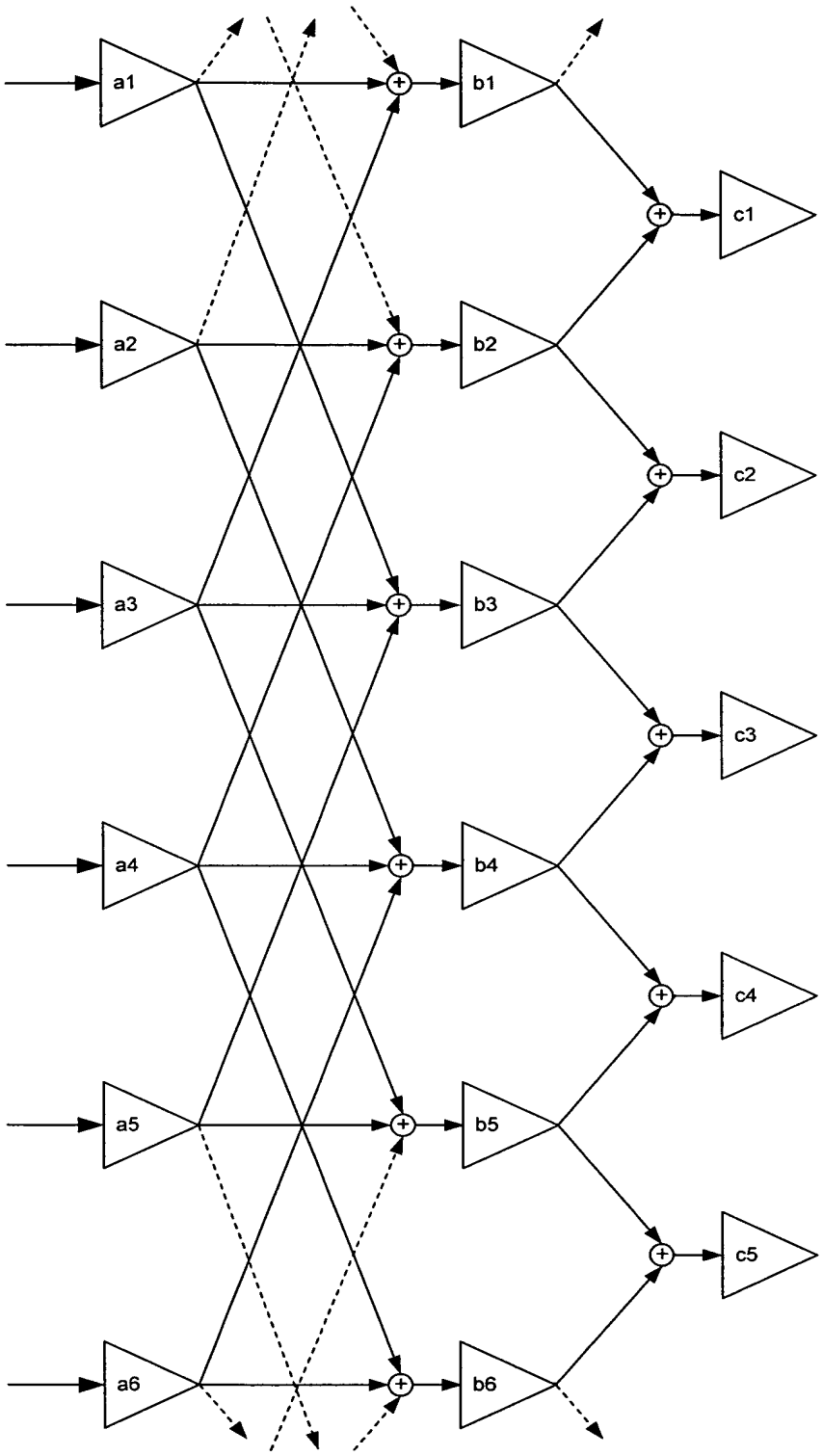

FIG. 5

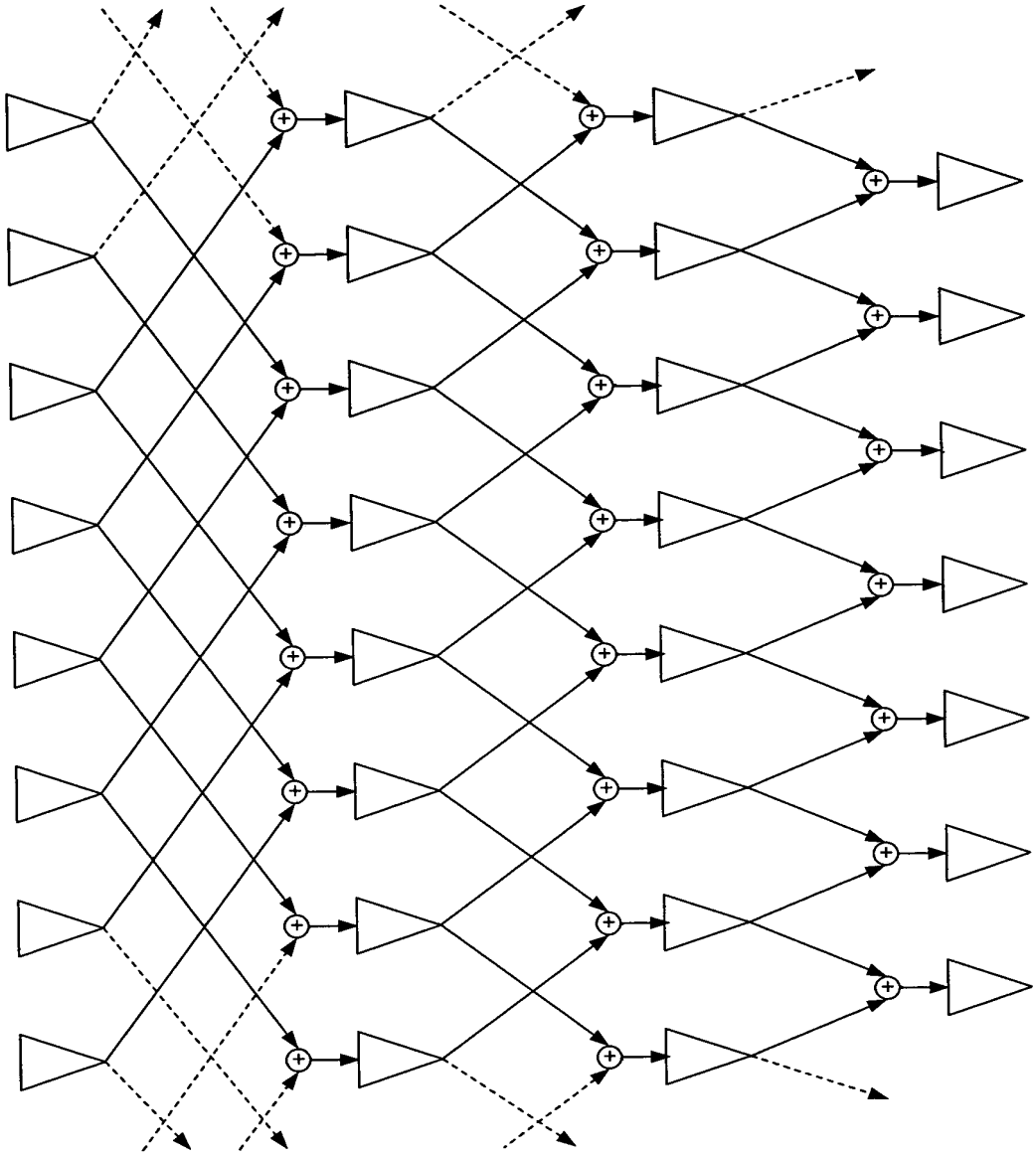

FIG. 6

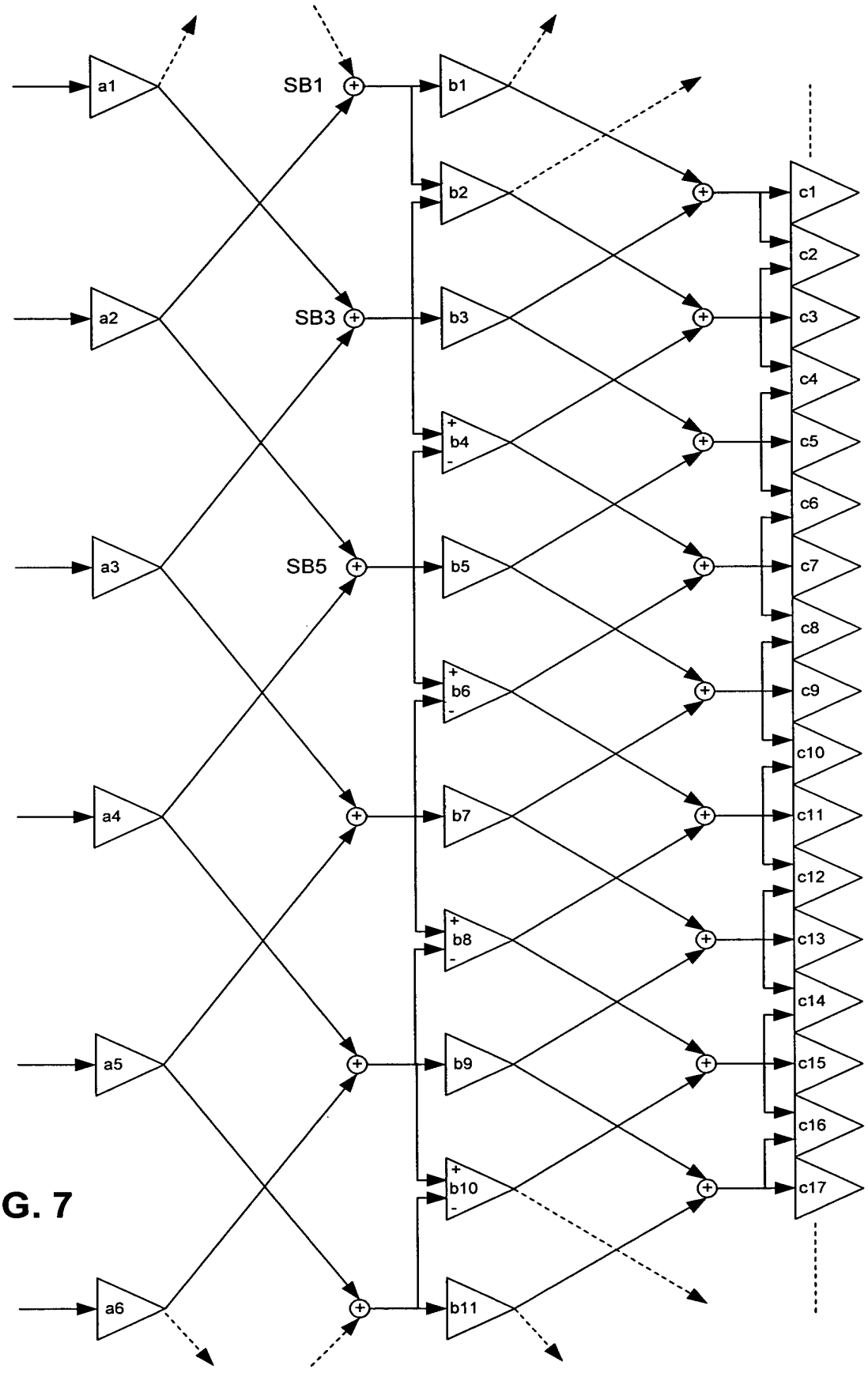

FIG. 7

0304-28.vsd/7

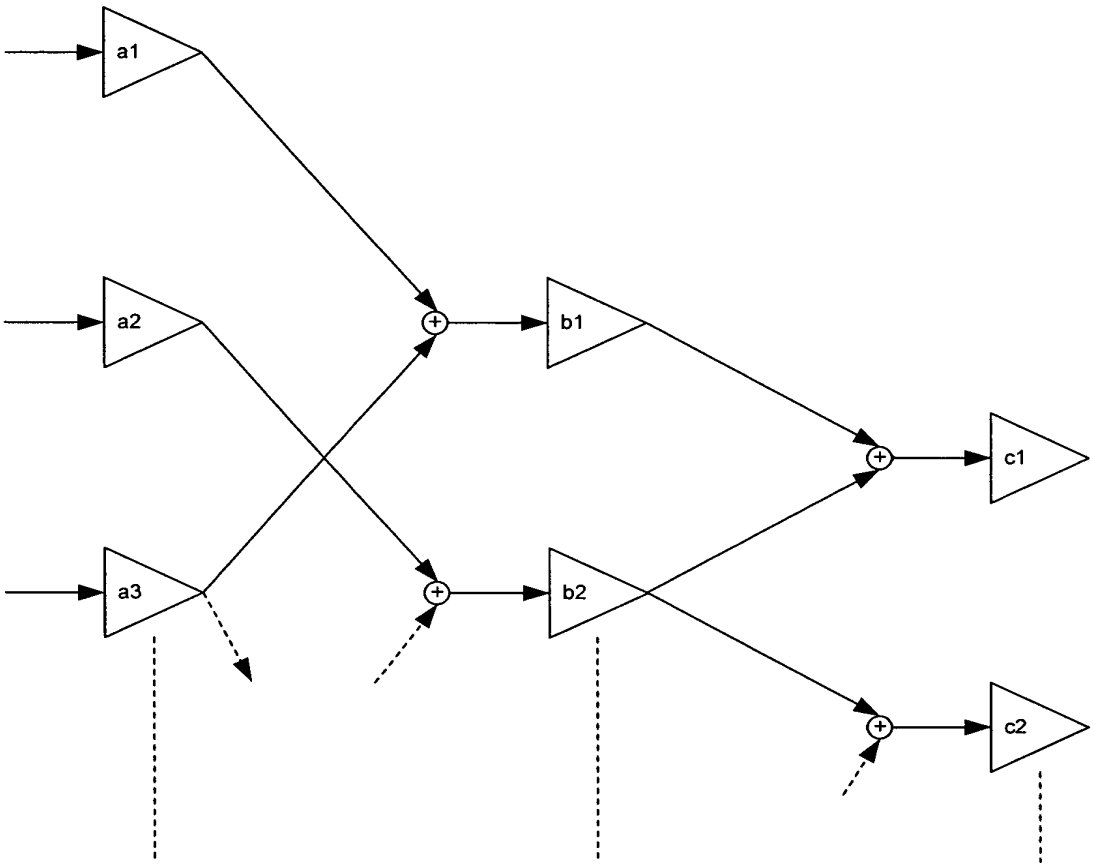

FIG. 8

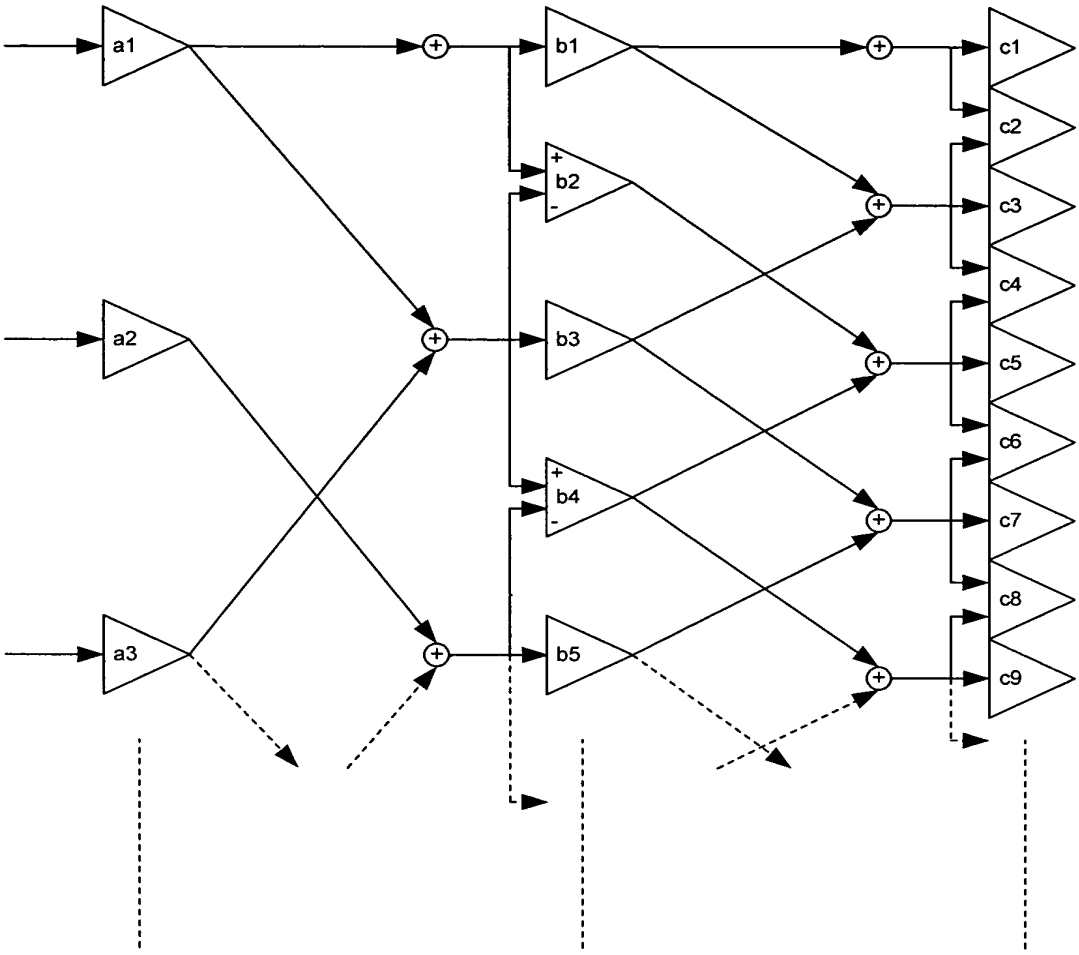

FIG. 9

"a" array - "b" array avging	"b" array - "c" array avging	"c" array - "d" array avging	prior art eff avg	proposed eff avg	improvement factor
2	2		2.666667	4	1.5
2	3		3.6	6	1.66666667
3	2		3.6	6	1.66666667
3	3		4.263158	9	2.11111111
2	4		4.571429	8	1.75
4	2		4.571429	8	1.75
3	4		5.142857	12	2.3333333
4	3		5.142857	12	2.3333333
4	4		5.818182	16	2.75
2	2	2	3.2	8	2.5

FIG. 10

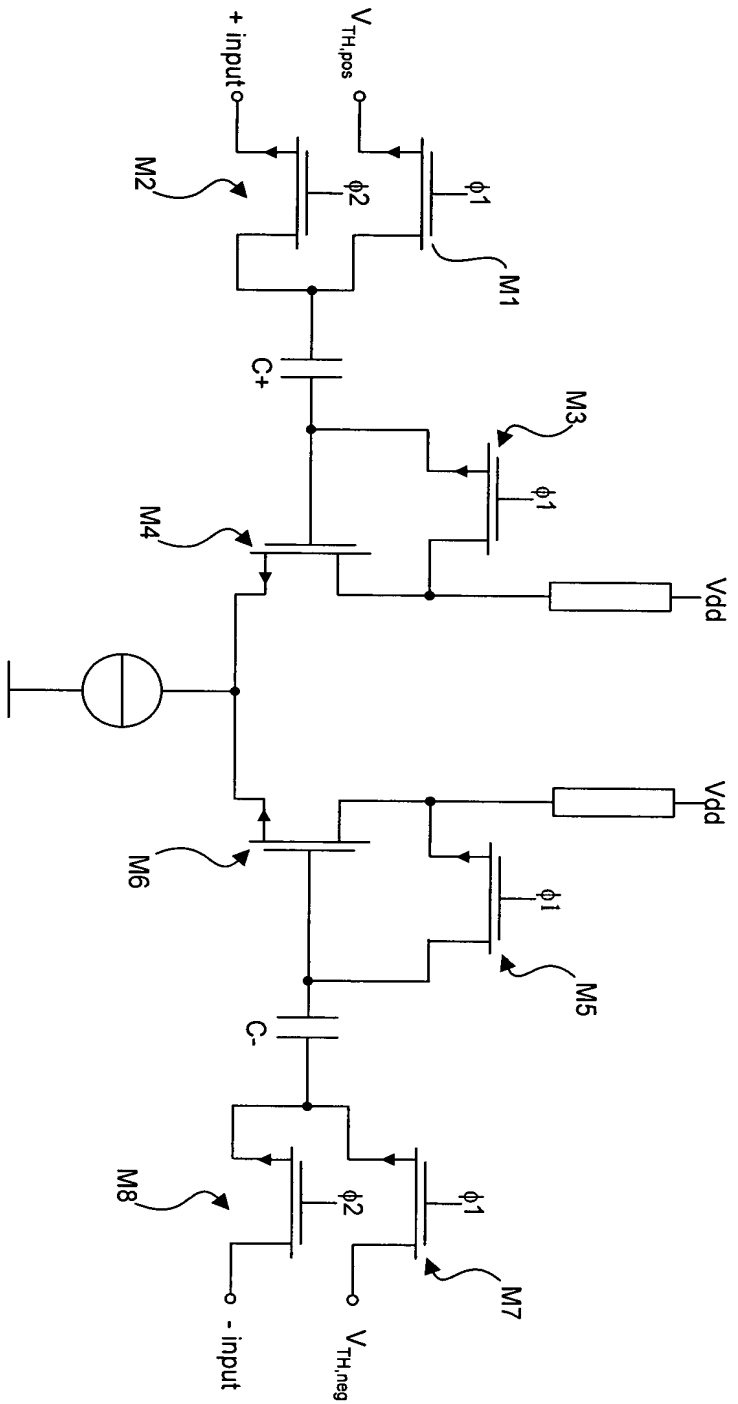
+ input
$V_{TH,pos}$
M2
M1
$\phi 2$
$\phi 1$
C+
M3
M4
Vdd
Vdd
M6
M5
C-
M8
M7
- input
$V_{TH,neg}$

FIG. 11

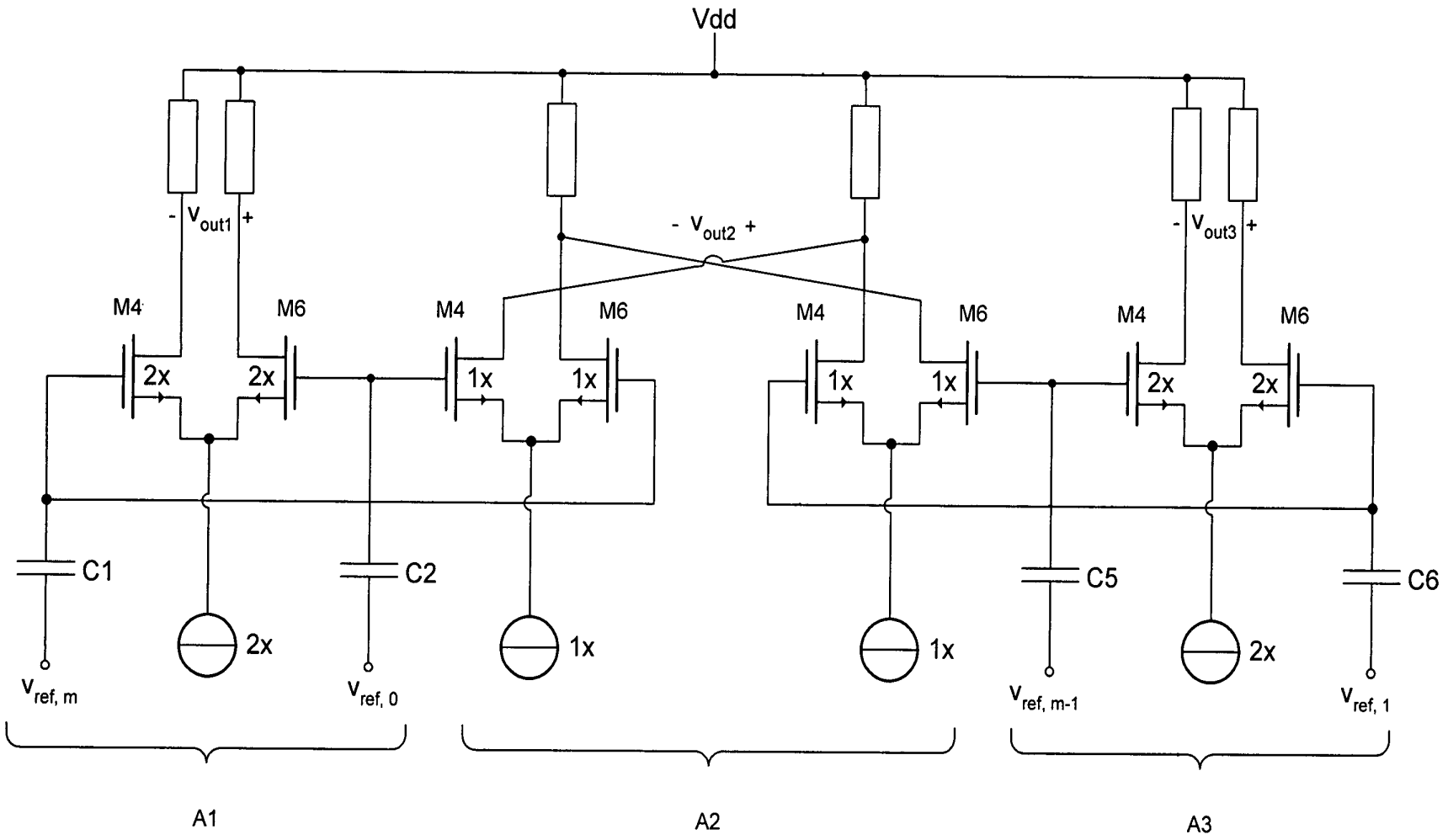
Vdd
- Vout1 +
- Vout2 +
- Vout3 +
M4
M6
2x
1x
C1
C2
C5
C6
Vref, m
Vref, 0
Vref, m-1
Vref, 1
A1
A2
A3

FIG. 12

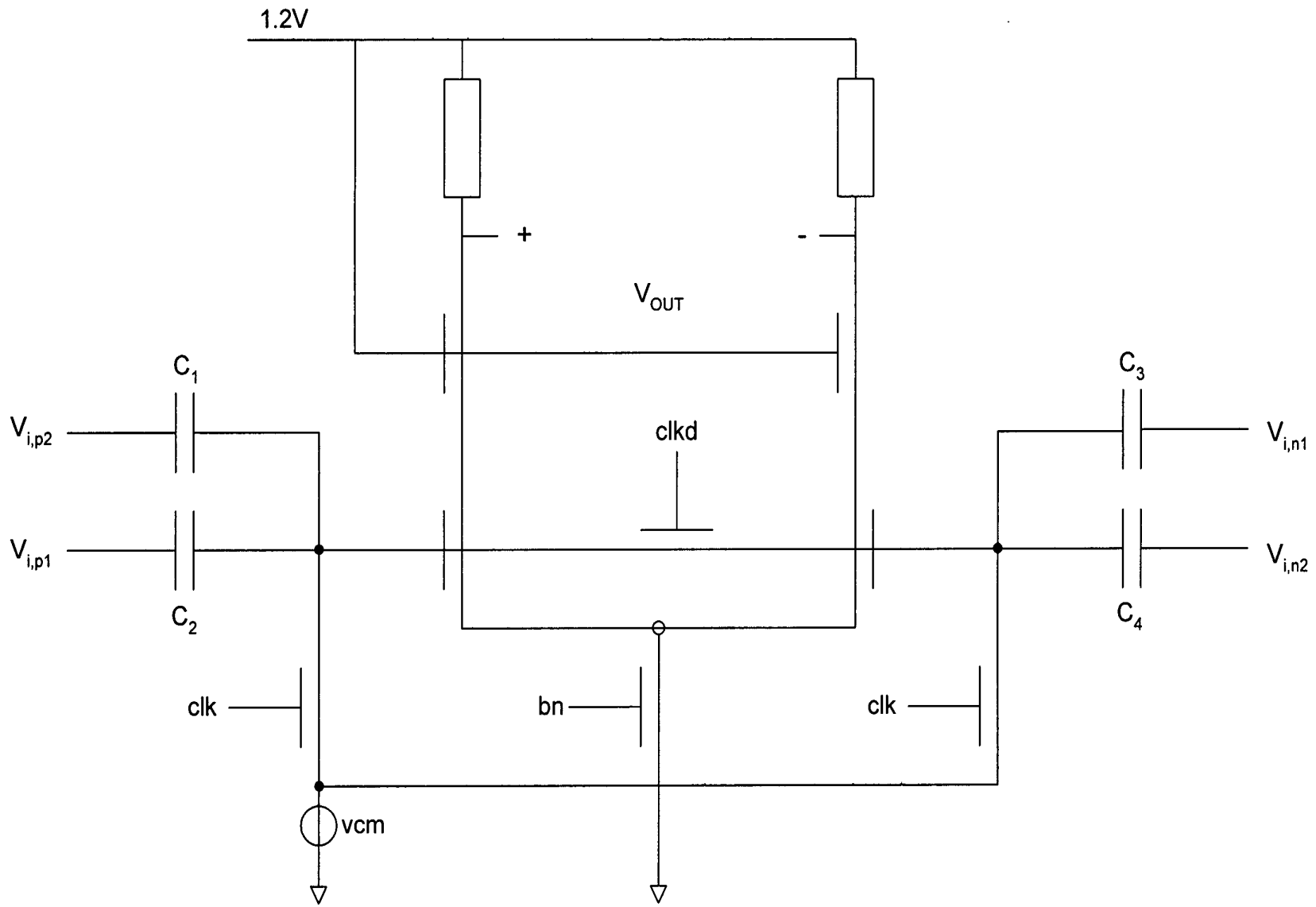
1.2V
+
-
V_{OUT}
C_1
C_3
$V_{i,p2}$
clkd
$V_{i,n1}$
$V_{i,p1}$
$V_{i,n2}$
C_2
C_4
clk
bn
clk
vcm
0304-28.vsd/13

FIG. 13